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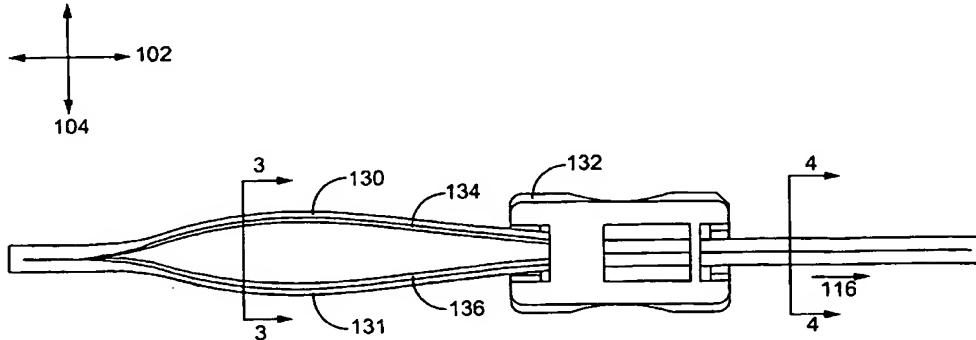
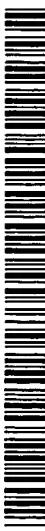
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(54) Title: CLOSURE DEVICE



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(57) Abstract: The closure device (121) includes interlocking fastening strips (130, 131). The closure device may include a slider (132) slidably disposed on the fastening strips for facilitating the occlusion and deocclusion of the fastening strips. The fastening strips (130, 131) include a first color for facilitating visual confirmation of occlusion of the fastening strips. The visible indication of occlusion will be observed from the top of the closure device (121). If the fastening strips are properly occluded, then the first color will not be visible by viewing the top of the closure device (121) when the bag is deoccluded.

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CLOSURE DEVICE

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FIELD OF THE INVENTION

The present invention relates generally to closure devices and, more particularly, a closure device providing visible confirmation of occlusion. The invention is 10 particularly well suited for use on flexible storage containers, including plastic bags.

BACKGROUND OF THE INVENTION

15 The use of closure devices for fastening storage containers, including plastic bags, is generally known. Furthermore, the manufacture of closure devices made of plastic materials is generally known to those skilled in the art, as demonstrated by the numerous patents in this area.

20

A particularly well-known use for closure devices is in connection with flexible storage containers, such as plastic bags. In some instances, the closure device and the associated container are formed from thermoplastic materials, 25 and the closure device and the sidewalls of the container are integrally formed by extrusion as a single piece. Alternatively, the closure device and sidewalls of the container may be formed as separate pieces and then connected by heat sealing or any other suitable connecting process. In 30 either event, such closure devices are particularly useful in providing a closure means for retaining matter within the bag.

Conventional closure devices typically utilize mating fastening strips or closure elements, which are used to selectively seal the bag. With such closure devices, 5 however, it is often difficult to determine whether the fastening strips are fully occluded

10 The invention provides a closure device in combination with visible confirmation of closure. In addition, the invention provides that visible confirmation can be observed from the top of the closure device.

SUMMARY OF THE INVENTION

15 The closure device includes interlocking fastening strips. The closure device may include a slider slidably disposed on the interlocking fastening strips for facilitating the occlusion and deocclusion of the fastening 20 strips when moved towards first and second ends of the fastening strips.

In addition, the fastening strips have a visual indication of occlusion of the closure device. Thus a user 25 will be able to visually confirm that the closure device has been properly occluded, not only while in the process of occluding the closure device, but also after the closure device has been occluded. The visible indication of 30 occlusion will be observed from the top of the closure device. The closure elements have a first color and the flanges have a second color. If the fastening strips are

properly occluded the first color will not be visible by viewing the top of the closure device.

5 The present invention will become more readily apparent upon reading the following detailed description of exemplified embodiments and upon reference to the accompanying drawings herein.

BRIEF DESCRIPTION OF THE DRAWINGS

10

Fig. 1 is a perspective view of a container according to the present invention in the form of a plastic bag;

15

Fig. 2 is a top view of the container in Fig. 1;

Fig. 3 is a cross-sectional view of the fastening strips along line 3-3 in Fig. 2;

20

Fig. 4 is a cross-sectional view of the fastening strips along line 4-4 in Fig. 2;

Fig. 5 is a top view of the container in Fig 1 and illustrates an unoccluded portion in the fastening strips;

25

Fig. 6 is a cross-sectional view of fastening strips;

Fig. 7 is a cross-sectional view of another embodiment of fastening strips;

30

Fig. 8 is a cross-sectional view of another embodiment of fastening strips; and

Fig. 9 is a cross-sectional view of another embodiment of fastening strips.

#### DESCRIPTION OF THE EMBODIMENTS

5

Fig. 1 illustrates an embodiment of a container in the form of a plastic bag 120 having a sealable closure device 121. The bag 120 includes a first sidewall 122 and a second sidewall 123 joined at seams 124, 125 to define a compartment 10 accessible through the open top end but sealable by means of the closure device 121.

The closure device 121 includes first and second fastening strips 130, 131 and a slider 132. The fastening strips 130, 131 and the slider 132 have a longitudinal X axis 102, a transverse Y axis 104 and a vertical Z axis 106. The transverse Y axis 104 is perpendicular to the longitudinal X axis 102. The vertical Z axis 106 is perpendicular to the longitudinal X axis 102 and the vertical Z axis 106 is perpendicular to the transverse Y axis 104.

The first fastening strip 130 is attached to the first sidewall 122 near the top end of the bag 120. The second fastening strip 131 is attached to the second sidewall 123 near the top end of the bag 120. The fastening strips 130, 131 are located across from and substantially parallel to each other and are configured to allow the fastening strips 130, 131 to be able to interlock. The slider 132 is mounted onto the fastening strips 130, 131 so that the slider 132 is restrained from being removed from the fastening strips 130, 131 but free to slide along the X axis 102. The slider 132

engages the fastening strips 130, 131 so that when the slider 132 moves in an occlusion direction 114, the fastening strips 130, 131 occlude and the bag 120 is sealed, and when the slider 132 moves in a deocclusion direction 5 116, the fastening strips 130, 131 deocclude or separate and the bag 120 is open.

Referring to Figs. 2-4, the first fastening strip 130 includes a first closure element 134 and the second fastening strip 131 includes a second closure element 136. The first closure element 134 has a first color. The second closure element 136 may have the first color, another color or no color. The first fastening strip 130 may include a flange 138 which extends inwardly toward the second fastening strip 131. The flange 138 may have a second color, another color or no color. The second fastening strip 131 may include a flange 139 which extends inwardly toward the first fastening strip 130. The flange 139 may have a second color, another color of no color.

20

In another embodiment, the flange may be part of the closure element as shown in Fig. 6, but the flange may have a color different than the closure element as noted above.

25

Figs. 3 and 4 show the fastening strips in the deoccluded and occluded positions and illustrate the color changes when viewed from the top of the fastening strips in the Z axis 106.

30

Fig. 3 shows the fastening strips 130, 131 in the deoccluded position. The fastening strips 130, 131 may be viewed from the top of the fastening strips in the Z axis 106

along lines of sight 150, 152, 154, 156. When the fastening strips 130, 131 are viewed along line of sight 150 or line of sight 156, the color of the flanges 138, 139 will be observed. If the fastening strips 130, 131 are viewed from 5 above along line of sight 152 or line of sight 154, the color of the closure elements 134, 136 will be observed.

Fig. 4 shows the fastening strips 130, 131 in the occluded position. Lines of sight 160, 162 illustrate how 10 the fastening strips 130, 131 may be viewed from the top of the fastening strips in the Z axis 106. When the fastening strips 130, 131 are viewed along line of sight 160 or line of sight 162, only the color of the flanges 138, 139 will be observed. In addition, when the fastening strips 130, 131 15 are fully occluded, the color of the closure elements 134, 136 will not be observed. If the color of the closure elements 134, 136 are observed from above, then this situation is a visual indication that the fastening strips 130, 131 are partially deoccluded as shown in Fig 5.

20

Fig. 5 shows a top view of the container and illustrates the slider 132 moved in the occlusion direction. The fastening strips 130, 131 are not fully occluded, and contain a deoccluded portion 170 wherein the fastening strips 25 130, 131 are partially deoccluded. A partial cross-section of the fastening strips 130, 131 through the deoccluded portion 170 would be similar to Fig. 3. When the deoccluded portion 170 is viewed from above, the color of the closure elements 134, 136 will be observed, indicating that the 30 fastening strips 130, 131 are partially deoccluded.

The color of the closure elements 134, 136 and the flanges 138, 139 may be varied in several ways. In a first example, the closure elements 134, 136 may be a first color and the flanges 138, 139 may be a second color.

5.

In a second example, the closure elements 134, 136 may be a first color and the flanges 138, 139 may be a translucent second color. When viewed from the top of the closure device, the second color may visually combine with 10 the first color to create a third color. For example, the first color may be yellow and the second color may be translucent blue and the third color may be green.

15 In a third example, the closure element 134 may be a first color, the closure element 136 may be a second color and the flanges 138, 139 may be a third color.

20 In a fourth example, the closure element 134 may be a first color, the closure element 136 may be a second color, the flange 138 may be a third color and the flange 139 may be a fourth color.

25 In a fifth example, the closure element 134 may have a first color, the closure element 136 may have a second color and the flanges 138, 139 may be clear (i.e., no color). If the fastening strips are occluded and viewed from the top of the fastening strips, the user may see a combined third color which is a combination of the first and second colors, or the user may see that the first and second colors are reduced in 30 color intensity or the first and second colors are eliminated depending upon the clarity of the flanges.

As shown in Fig. 6, the fastening strips may be U-channel fastening strips as described in U.S. Patent 4,829,641. U-channel fastening strips include a first fastening strip 230 with a first closure element 236 and a second fastening strip 231 with a second closure element 234. The first closure element 236 engages the second closure element 234. The first fastening strip 230 may include a flange 263 disposed at the upper end of the first fastening strip 230 and a rib 267 disposed at the lower end of the first fastening strip 230. The first fastening strip 230 may include a flange portion 269. Likewise, the second fastening strip 231 may include a flange 253 disposed at the upper end of the second fastening strip 231 and a rib 257 disposed at the lower end of the second fastening strip 231. The second fastening strip 231 may include a flange portion 259. The side walls 222, 223 of the plastic bag 220 may be attached to the fastening strips 230, 231 by conventional manufacturing techniques.

The second closure element 234 includes a base portion 238 having a pair of spaced-apart parallelly disposed webs 240, 241, extending from the base portion 238. The base and the webs form a U-channel closure element. The webs 240, include hook closure portions 242, 244 extending from the webs 240, 241 respectively, and facing towards each other. The hook closure portions 242, 244 include guide surfaces 246, 247 which serve to guide the hook closure portions 242, 244 for occluding with the hook closure portions 252, 254 of the first closure element 236.

30

The first closure element 236 includes a base portion 248 including a pair of spaced-apart, parallelly disposed webs

250, 251 extending from the base portion 248. The base and the webs form a U-channel closure element. The webs 250, 251 include hook closure portions 252, 254 extending from the webs 250, 251 respectively and facing away from each other.

5 The hook closure portions 252, 254 include guide surfaces 245, 255, which generally serve to guide the hook closure portions 252, 254 for occlusion with the hook closure portions 242, 244 of the second closure element 234. The guide surfaces 245, 255 may also have a rounded crown

10 surface.

The slider 232 includes a top portion 272. The top portion provides a separator 243 having a first end and a second end wherein the first end may be wider than the second end. In addition, the separator 243 may be triangular in shape. When the slider is moved in the occlusion direction, the separator 243 deoccludes the fastening strips 230, 231 as shown in Fig. 6. Referring to Fig. 6, the closure elements 234, 236 are deoccluded and 20 specifically, the upper hook portions 242, 252 and the lower hook portions 244, 254 are deoccluded.

The interlocking fastening strips may comprise "arrowhead-type" or "rib and groove" fastening strips as 25 shown in Fig. 7 and as described in U.S. Patent 3,806,998. The rib element 305 interlocks with the groove element 307. The rib element 305 is of generally arrow-shape in transverse cross section including a head 310 comprising interlock shoulder hook portions 311 and 312 generally convergently 30 related to provide a cam ridge 313 generally aligned with a stem flange 314 by which the head is connected in spaced relation with respect to the supporting flange portion 308.

(U.S. Patent 3,806,998, Col. 2, lines 16-23). At their surfaces nearest the connecting stem flange 314, the shoulder portions 311 and 312 define reentrant angles therewith providing interlock hooks engageable with interlock hook flanges 315 and 317 respectively of the groove element 307. (U.S. Patent 3,806,998, Col. 2, lines 23-28). Said hook flanges generally converge toward one another and are spread open to receive the head 310 therebetween when said head is pressed into said groove element 307 until the head is fully received in a groove 318 of said groove element 307 generally complementary to the head and within which the head is interlocked by interengagement of the head shoulder hook portions 311 and 312 and the groove hook flanges 315 and 317. (U.S. Patent 3,806,998, Col. 2, lines 28-36). Through this arrangement, as indicated, the head and groove elements 305 and 307 are adapted to be interlockingly engaged by being pressed together and to be separated when forcibly pulled apart, as by means of a generally U-shaped slider 319. (U.S. Patent 3,806,998, Col. 2, lines 36-41).

20

The slider 319 includes a flat back plate 320 adapted to run along free edges 321 on the upper ends of the sections of the flange portions 308 and 309 as shown in the drawing. (U.S. Patent 3,806,998, Col. 2, lines 41-46). Integrally formed with the back plate 320 and extending in the same direction (downwardly as shown) therefrom are respective coextensive side walls 322 with an intermediate spreader finger 323 extending in the same direction as the side walls at one end of the slider. (U.S. Patent 3,806,998, Col. 2, lines 46-51). The side walls 322 are in the form of panels which are laterally divergent from a narrower end of the slider. (U.S. Patent 3,806,998, Col. 2, lines 51-55). The

slider walls 322 are each provided with an inwardly projecting shoulder structure 324 flange adapted to engage respective shoulder ribs 325 and 327 on respectively outer sides of the lower section of the flange portions 308 and 5 309. (U.S. Patent 3,806,998, Col. 2, line 66 to Col. 3, line 3).

10 In accordance with the invention, the head 310 may be a first color and the groove element 307 may be a second color or no color. In another embodiment, the head 310 and/or the groove element 307 may be a first color and the fastening strips may include a flange or flanges as noted above which may be a second color or no color as noted above.

15 Additionally, the interlocking fastening strips may comprise "profile" fastening strips, as shown in Fig. 8 and described in U.S. Patent 5,664,299. As shown in FIG. 8, the first profile 416 has at least an uppermost closure element 416a and a bottommost closure element 416b. (U.S. Patent 20 5,664,299, Col. 3, lines 25-27). The closure elements 416a and 416b project laterally from the inner surface of strip 414. (U.S. Patent 5,664,299, Col. 3, lines 27-28). Likewise, the second profile 417 has at least an uppermost closure element 417a and a bottommost closure element 417b. 25 (U.S. Patent 5,664,299, Col. 3, lines 28-30). The closure elements 417a and 417b project laterally from the inner surface of strip 415. (U.S. Patent 5,664,299, Col. 3, lines 30-32). When the bag is closed, the closure elements of profile 416 interlock with the corresponding closure elements 30 of profile 417. (U.S. Patent 5,664,299, Col. 3, lines 32-34). As shown in FIG. 8, closure elements 416a, 416b, 417a and 417b have hooks on the ends of the closure elements, so

that the profiles remain interlocked when the bag is closed, thereby forming a seal. (U.S. Patent 5,664,299, Col. 3, lines 34-37).

5        The straddling slider 410 comprises an inverted U-shaped member having a top 420 for moving along the top edges of the strips 414 and 415. (U.S. Patent 5,664,299, Col. 4, lines 1-3). The slider 410 has side walls 421 and 422, depending from the top 420. (U.S. Patent 5,664,299, Col. 4, lines 3-4). A separating leg 423 depends from the top 420 between the side walls 421 and 422 and is located between the uppermost closure elements 416a and 417a of profiles 416 and 417. (U.S. Patent 5,664,299, Col. 4, lines 26-30). The fastening assembly includes ridges 425 on the outer surfaces 10 of the fastening strips 414 and 415, and shoulders 421b and 422b on the side walls of the slider. (U.S. Patent 5,664,299, Col. 4, lines 62-65). The shoulders act as means for maintaining the slider in straddling relation with the fastening strips by grasping the lower surfaces of the ridges 15 425. (U.S. Patent 5,664,299, Col. 5, lines 4-7).

20        In accordance with the invention, the uppermost closure element 417a may be a first color and the first profile 416 or a portion thereof may be a second color or no color.

25        Also, the interlocking fastening strips may be "rolling action" fastening strips as shown in Fig. 9 and described in U.S. Patent 5,007,143. The strips 514 and 515 include profiled tracks 518 and 519 extending along the length thereof parallel to the rib and groove elements 516 and 517 and the rib and groove elements 516, 517 have complimentary cross-sectional shapes such that they are closed by pressing 30

the bottom of the elements together first and then rolling the elements to a closed position toward the top thereof. (U.S. Patent 5,007,143, Col. 4, line 62 to Col. 5, line 1). The rib element 516 is hook shaped and projects from the 5 inner face of strip 514. (U.S. Patent 5,007,143, Col. 5, lines 1-3). The groove element 517 includes a lower hook-shaped projection 517a and a relatively straight projection 517b which extend from the inner face of strip 515. (U.S. Patent 5,007,143, Col. 5, lines 3-6). The profiled tracks 10 518 and 519 are inclined inwardly toward each other from their respective strips 514 and 515. (U.S. Patent 5,007,143, Col. 5, lines 6-8).

The straddling slider 510 comprises an inverted U-shaped plastic member having a back 520 for moving along the top edges of the tracks 518 and 519 with side walls 521 and 522 depending therefrom for cooperating with the tracks and extending from an opening end of the slider to a closing end. (U.S. Patent 5,007,143, Col. 5, lines 26-31). A separator 20 finger 523 depends from the back 520 between the side walls 521 and 522 and is inserted between the inclined tracks 518 and 519. (U.S. Patent 5,007,143, Col. 5, lines 34-36). The slider 510 has shoulders 521a and 522a projecting inwardly from the depending side walls 521 and 522 which are shaped 25 throughout the length thereof for cooperation with the depending separator finger 523 in creating the rolling action in opening and closing the reclosable interlocking rib and groove profile elements 516 and 517. (U.S. Patent 5,007,143, Col. 5, lines 43-49).

In accordance with the invention, the projection 517b may have a first color and the track 518 or the entire rib element 514 may have a second color or no color.

5        Although several interlocking fastening strip embodiments have been specifically described and illustrated herein, it will be readily appreciated by those skilled in the art that other kinds, types, or forms of fastening strips may be used without departing from the scope or  
10      spirit of the present invention.

The interlocking fastening strips may be manufactured by extrusion through a die.

15       The interlocking fastening strips may be formed from any suitable thermoplastic material including, for example, polyethylene, polypropylene, nylon, or the like, or from a combination thereof. Thus, resins or mixtures of resins such as high density polyethylene, medium density polyethylene, 20 and low density polyethylene may be employed to prepare the interlocking fastening strips. For example, the fastening strips may be made from low density polyethylene.

25       The fastening strips may be appropriately colored using a suitable colorant such as a dye or pigment.

30       When the fastening strips are used in a sealable bag, the fastening strips and the films that form the body of the bag may be conveniently manufactured from heat sealable material. In this way, the bag may be economically formed by using an aforementioned thermoplastic material and by heat sealing the fastening strips to the bag. For example, the

bag may be made from a mixture of high pressure, low density polyethylene and linear, low density polyethylene.

5 The fastening strips may be manufactured by extrusion or other known methods. For example, the closure device may be manufactured as individual fastening strips for later attachment to the bag or may be manufactured integrally with the bag.

10 The fastening strips can be manufactured in a variety of forms to suit the intended use. The fastening strips may be integrally formed on the opposing sidewalls of the container or bag, or connected to the container by the use of any of many known methods. For example, a thermoelectric 15 device may be applied to a film in contact with the flange portion of the fastening strips or the thermoelectric device may be applied to a film in contact with the base portion of fastening strips having no flange portion, to cause a transfer of heat through the film to produce melting at the 20 interface of the film and a flange portion or base portion of the fastening strips. Suitable thermoelectric devices include heated rotary discs, traveling heater bands, resistance-heated slide wires, and the like. The connection between the film and the fastening strips may also be 25 established by the use of hot melt adhesives, hot jets of air to the interface, ultrasonic heating, or other known methods. The bonding of the fastening strips to the film stock may be carried out either before or after the film is U-folded to form the bag. In any event, such bonding is done prior to 30 side sealing the bag at the edges by conventional thermal cutting. In addition, the first and second fastening strips may be positioned on opposite sides of the film. Such an

embodiment would be suited for wrapping an object or a collection of objects such as wires. The first and second fastening strips may be positioned on the film in a generally parallel relationship with respect to each other, although 5 this will depend on the intended use.

The slider may be multiple parts and snapped together. In addition, the slider may be made from multiple parts and fused or welded together. The slider may also be a one piece 10 construction. The slider can be colored, opaque, translucent or transparent. The slider may be injection molded or made by any other method. The slider may be molded from any suitable plastic material, such as, nylon, polypropylene, polystyrene, acetal, toughened acetal, polyketone, 15 polybutylene terephthalate, high density polyethylene, polycarbonate or ABS (acrylonitrile-butadiene-styrene).

From the foregoing it will be understood that modifications and variations may be effectuated to the 20 disclosed structures - particularly in light of the foregoing teachings - without departing from the scope or spirit of the present invention. As such, no limitation with respect to the specific embodiments described and illustrated herein is intended or should be inferred. In addition, all references 25 and copending applications cited herein are hereby incorporated by reference in their entireties.

WHAT IS CLAIMED IS:

1. A closure device, comprising:
  5. first and second fastening strips, the fastening strips have a longitudinal X axis, a transverse Y axis and a vertical Z axis, the fastening strips are arranged to be occluded over a predetermined length in the X axis, the first fastening strip includes a first portion with a first color, 10 the first color is not visible when viewed in the Z axis when the fastening strips are occluded.
  15. 2. The invention as in claim 1 wherein the first color is visible when viewed in the Z axis when the fastening strips are deoccluded.
  20. 3. The invention as in claim 1 wherein the second fastening strip includes a second portion with the first color.
  25. 4. The invention as in claim 1 wherein the first fastening strip includes a third portion with a second color.
  30. 5. The invention as in claim 1 wherein the second fastening strip includes a fourth portion with a second color.
  6. The invention as in claim 1 wherein the first portion is a closure element.
  7. The invention as in claim 4 wherein the third portion is a flange.

8. The invention as in claim 5 wherein the fourth portion is a flange.

5 9. The invention as in claim 1 wherein the first portion is a closure element, the second fastening strip includes a closure element with the first color, the first fastening strip includes a flange with a second color, the second fastening strip includes a flange with a second  
10 color.

10. The invention as in claim 9 wherein the closure elements are U-channel closure elements, the flanges are located above the closure elements, the flanges extend  
15 inward toward each other.

11 The invention as in claim 10 wherein the closure device includes a slider slidably disposed on the fastening strips, the slider facilitates occlusion of the fastening  
20 strips.

12. The invention as in claim 1 wherein the closure device includes a slider slidably disposed on the fastening strips, the slider facilitates occlusion of the fastening  
25 strips.

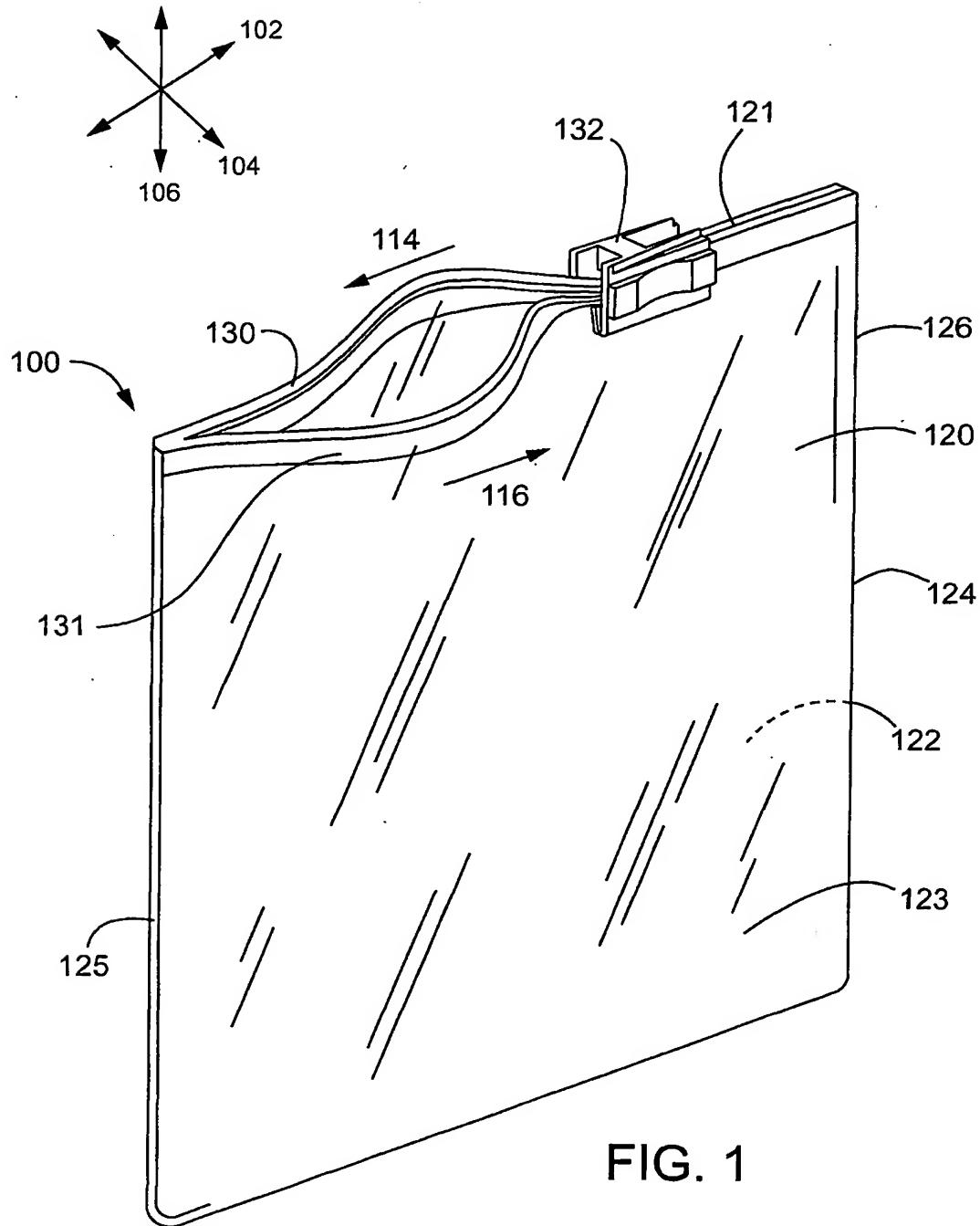
13. A container comprising:  
first and second sidewalls joined to form a compartment with an opening;  
30 first and second fastening strips respectively connected to the first and second sidewalls at the opening,

the fastening strips have a longitudinal X axis, a transverse Y axis and a vertical Z axis, the fastening strips are arranged to be occluded over a predetermined length in the X axis, the first fastening strip includes a first 5 portion with a first color, the first color is not visible when viewed in the Z axis when the fastening strips are occluded.

14. A method of manufacturing a closure device, 10 comprising:

providing first and second fastening strips, the fastening strips have a longitudinal X axis, a transverse Y axis and a vertical Z axis, the fastening strips are arranged to be occluded over a predetermined length in the X axis, 15 providing the first fastening strip includes a first portion with a first color, the first color is not visible when viewed in the Z axis when the fastening strips are occluded.

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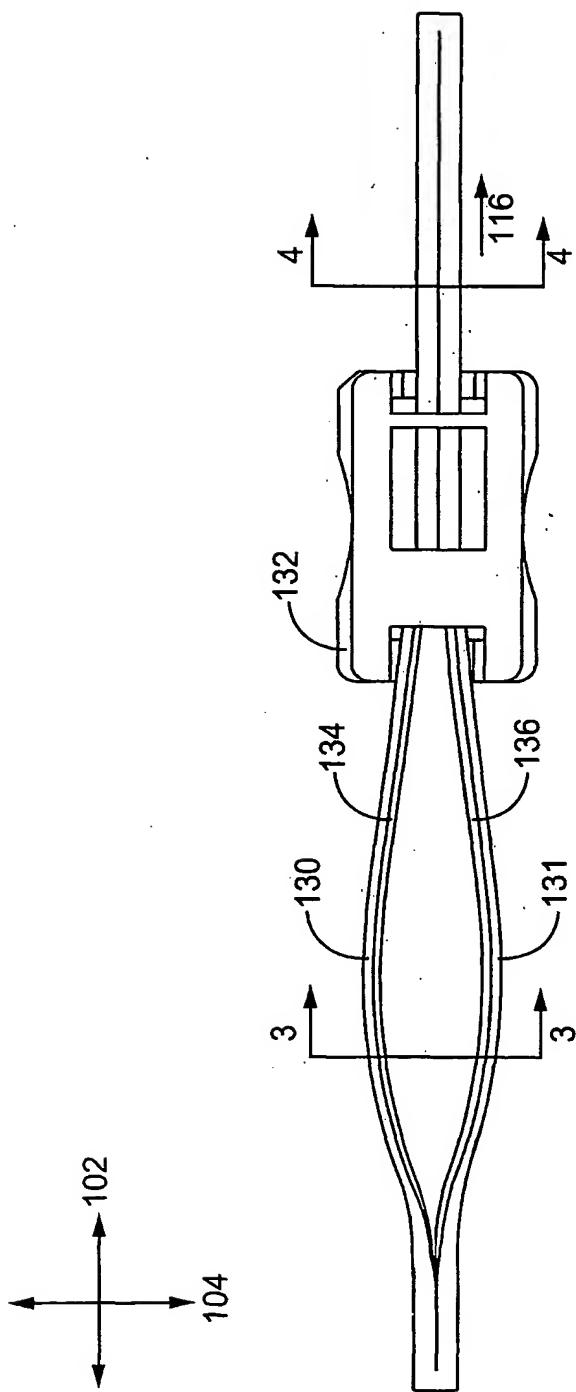
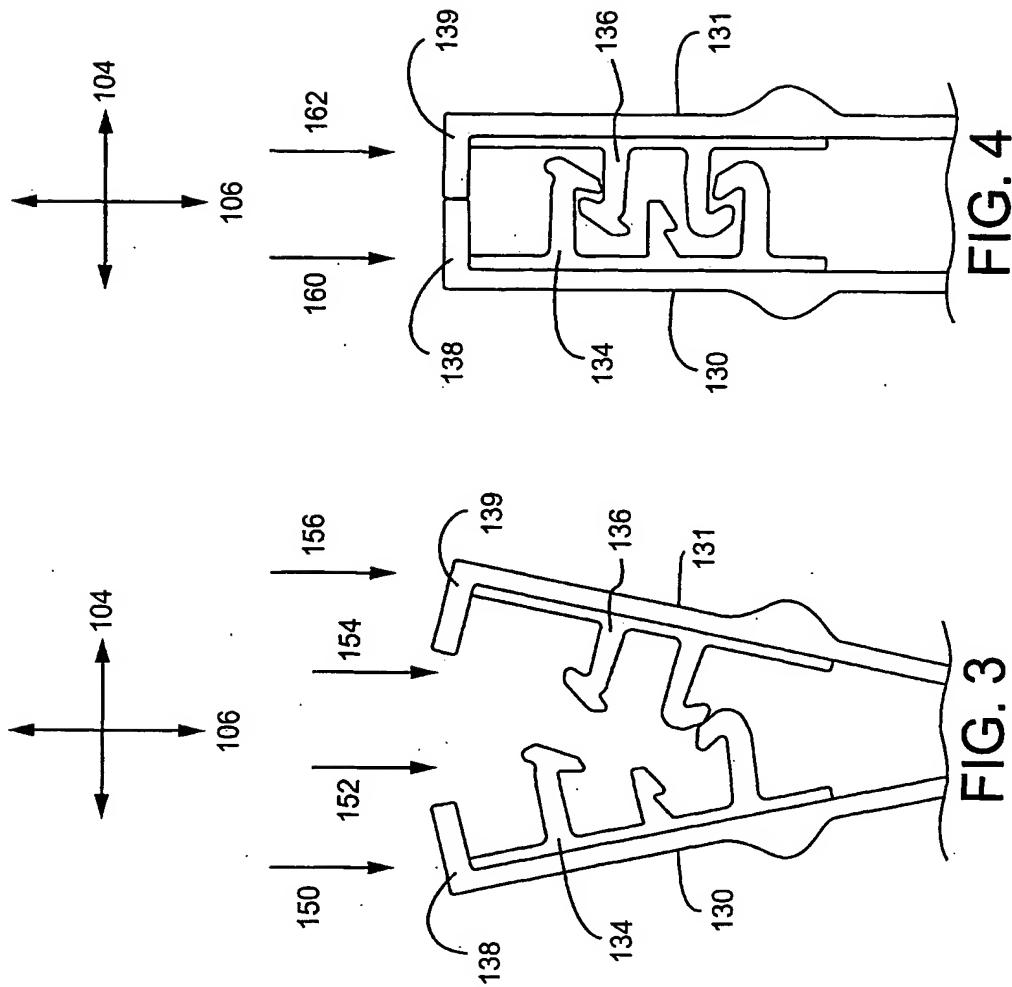


FIG. 2

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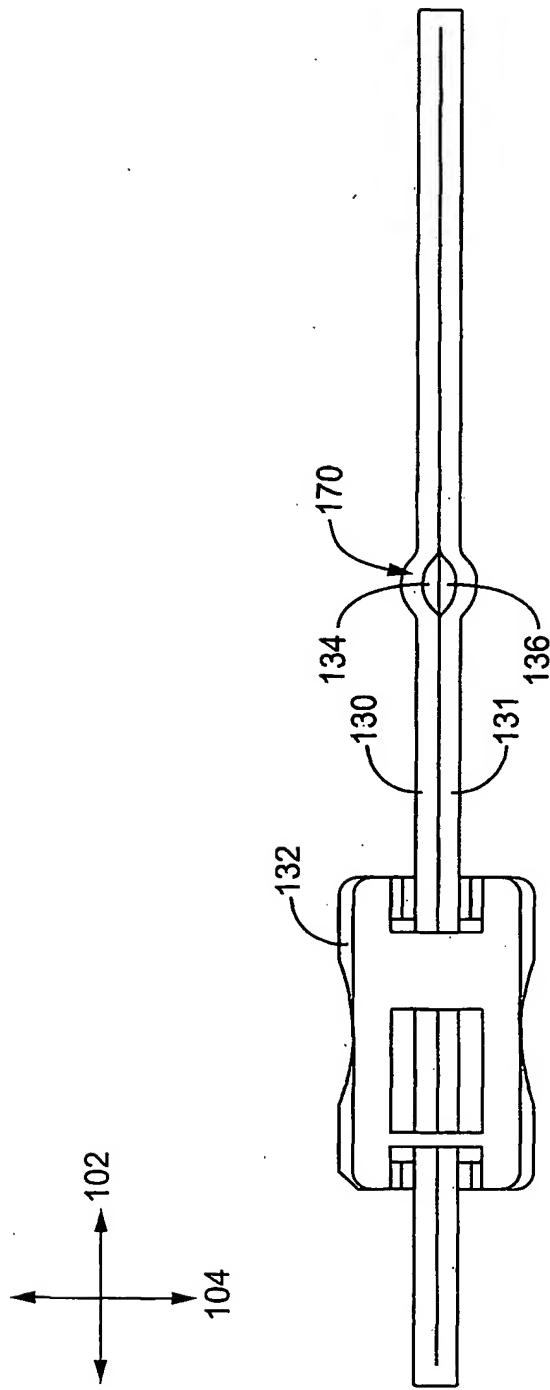
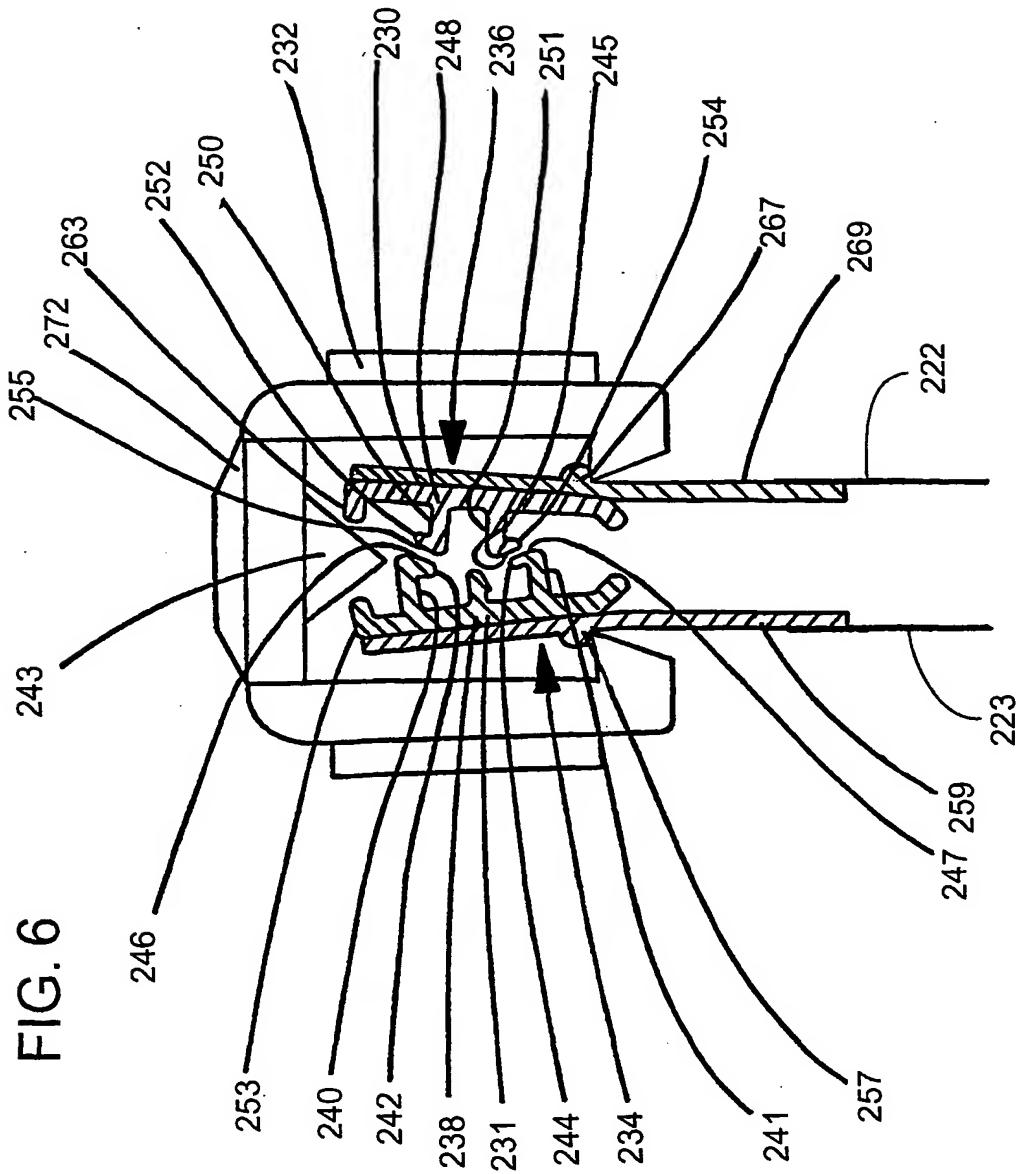


FIG. 5

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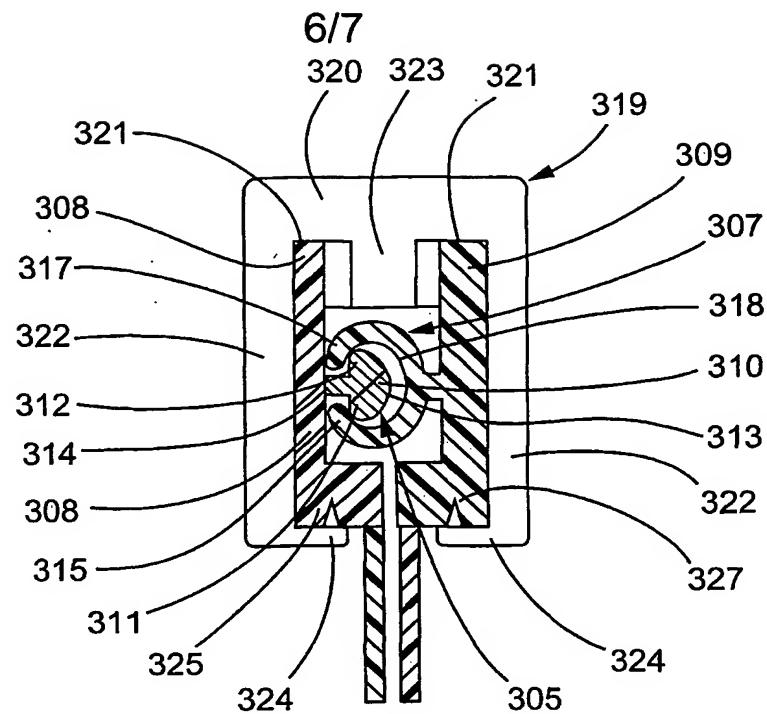


FIG. 7

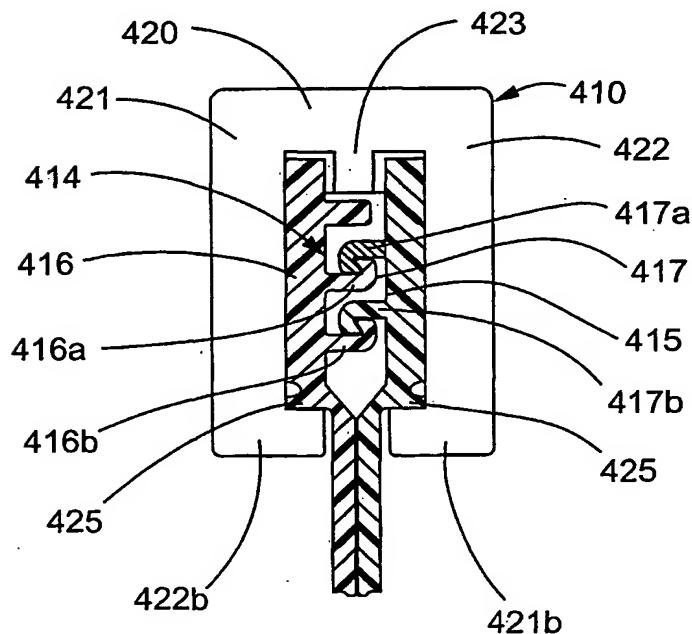


FIG. 8

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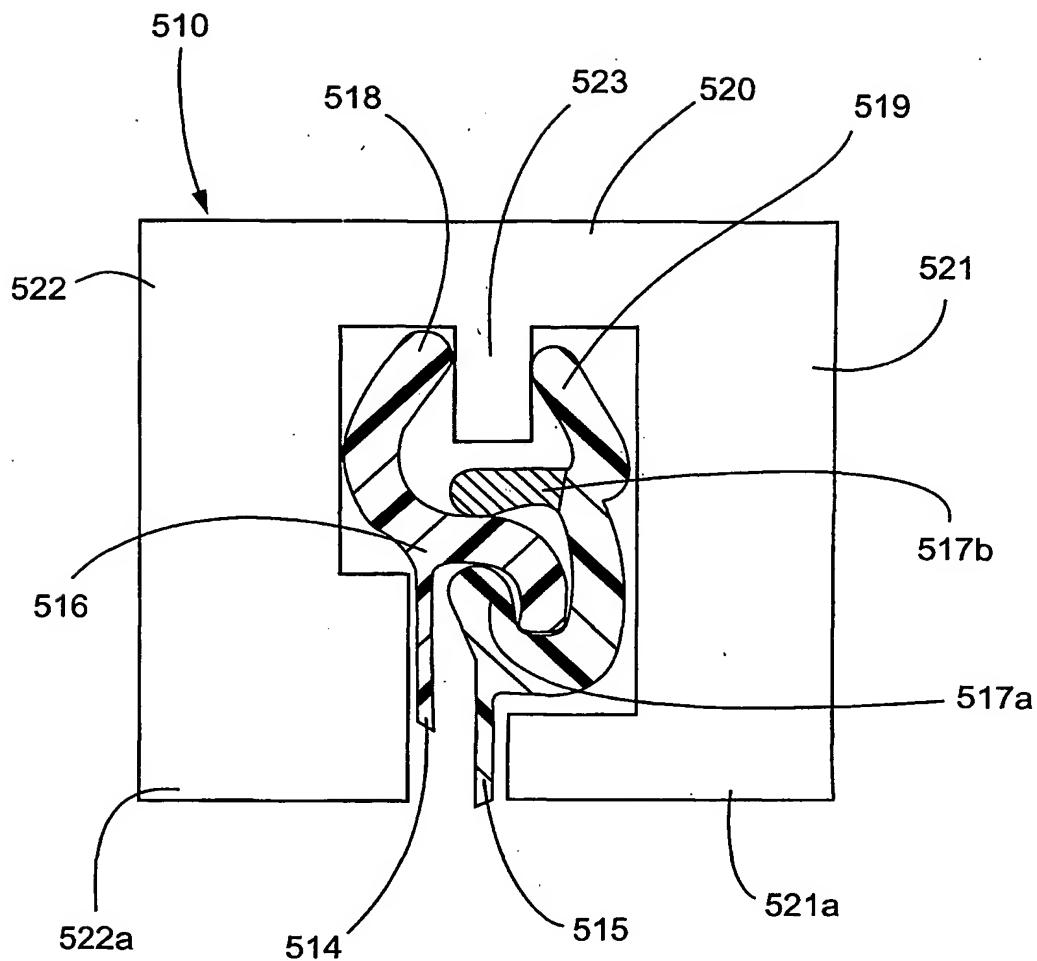


FIG. 9

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/15566

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : B65D 33/24  
US CL : 24/30.5R

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 24/30.5R, 399, 400, 587, 575-577; 383/64, 69

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,356,222 A (KETTNER et al) 18 October 1994 (18.10.1994), see figures 1-6a.	1-10, 13, 14
---		-----
A		11, 12
Y	US 5,140,796 A (POPE) 25 A 4. 1. 1992 (25.04.1992), see figure 1.	11, 12
A	US 5,248,201 A (KETTNER et al) 28 September 1993 (28.09.1993), see figure 4.	1
A	US 4,829,641 A (WILLIAMS) 16 May 1989 (16.05.1989), see figure 6.	1
A	US 4,186,786 A (KIRKPATRICK) 05 February 1980 (05.02.1980), see figure 2d.	1

Further documents are listed in the continuation of Box C.

See patent family annex.

Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"T"	-----
"E" earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search	Date of mailing of the international search report
28 August 2000 (28.08.2000)	03 NOV 2000
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer James R. Brittain Telephone No. 703-308-1113

1/7

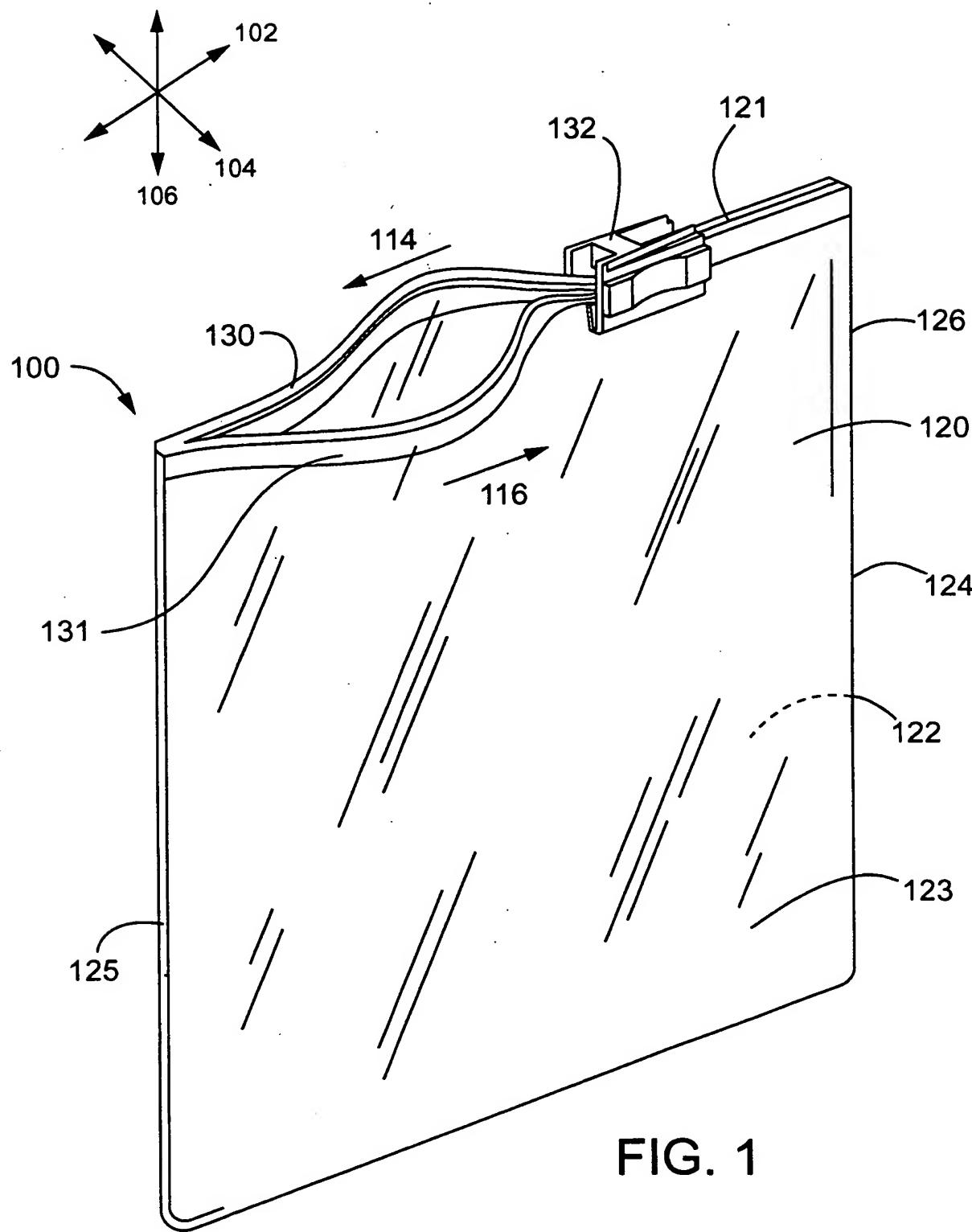


FIG. 1

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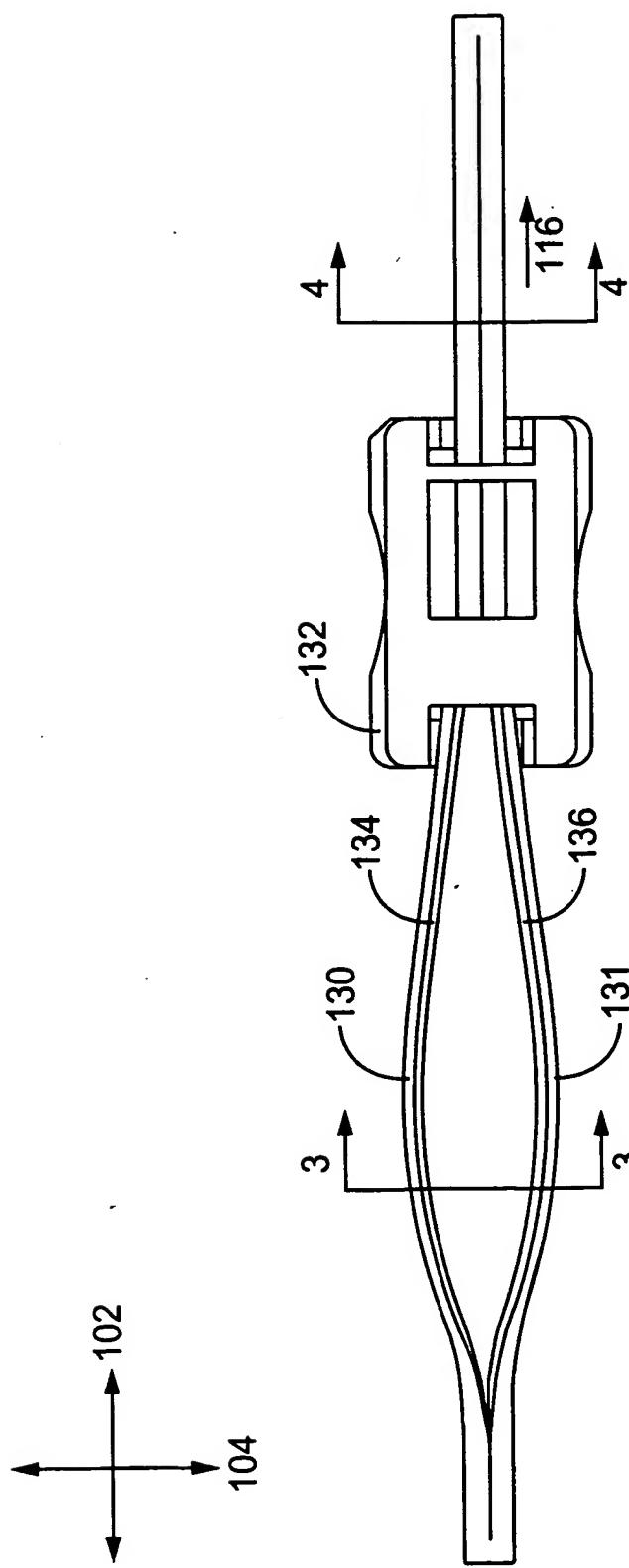
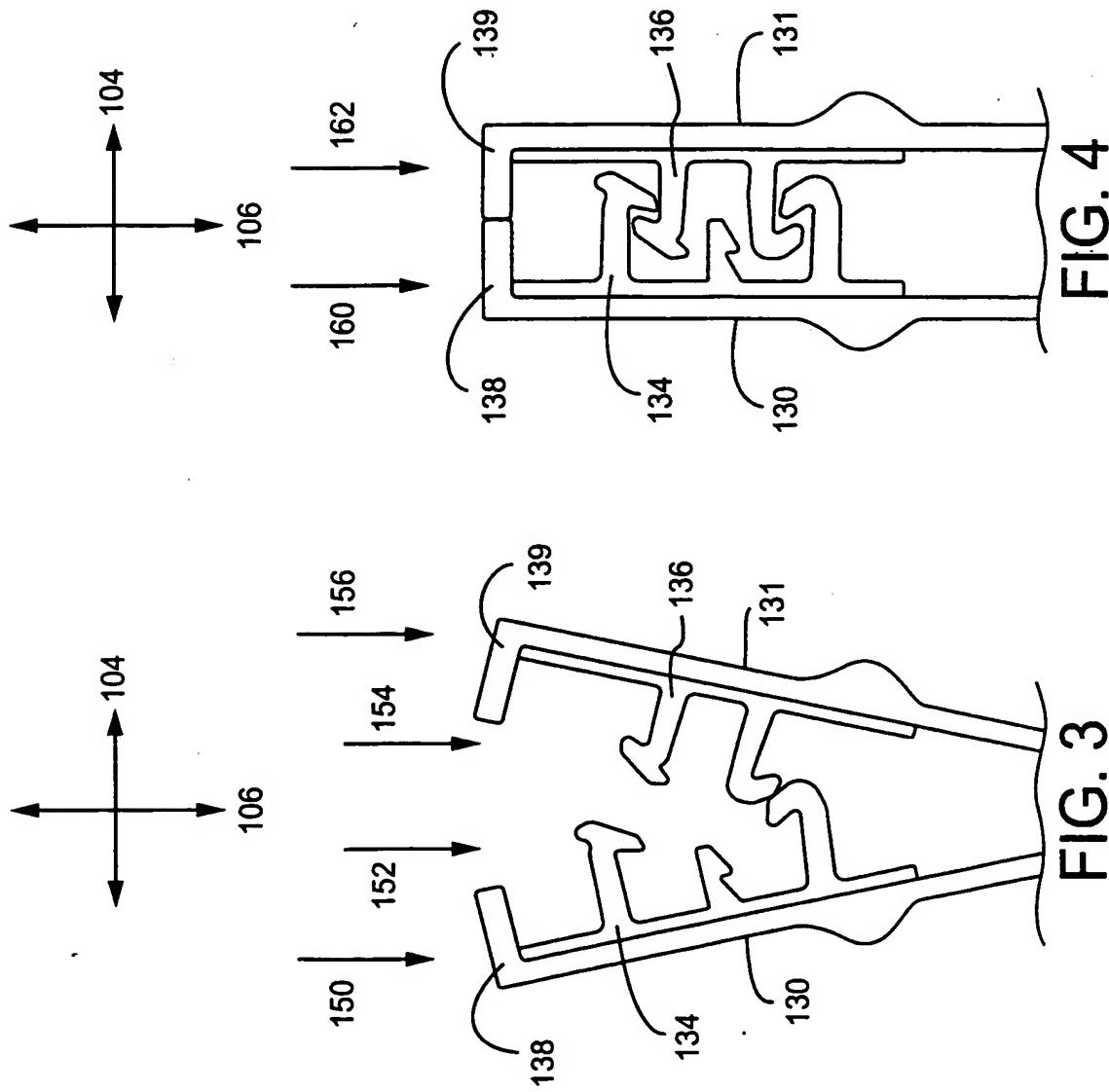


FIG. 2

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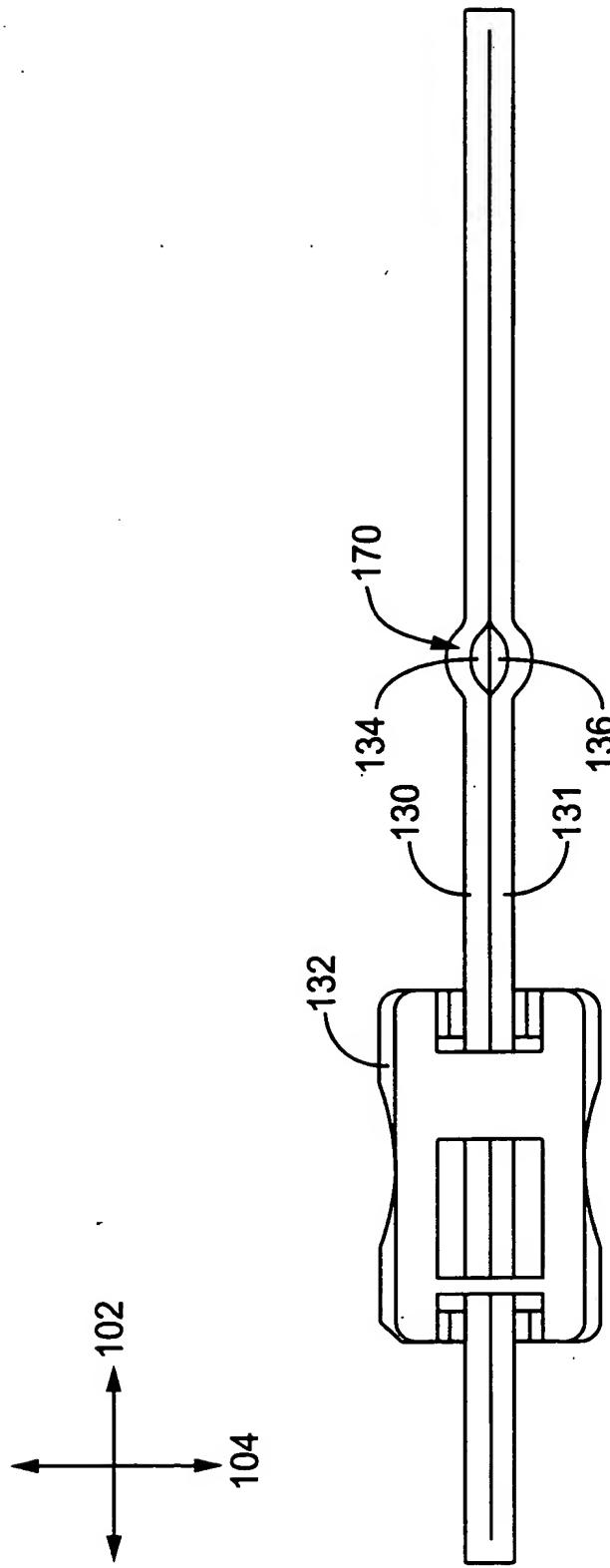
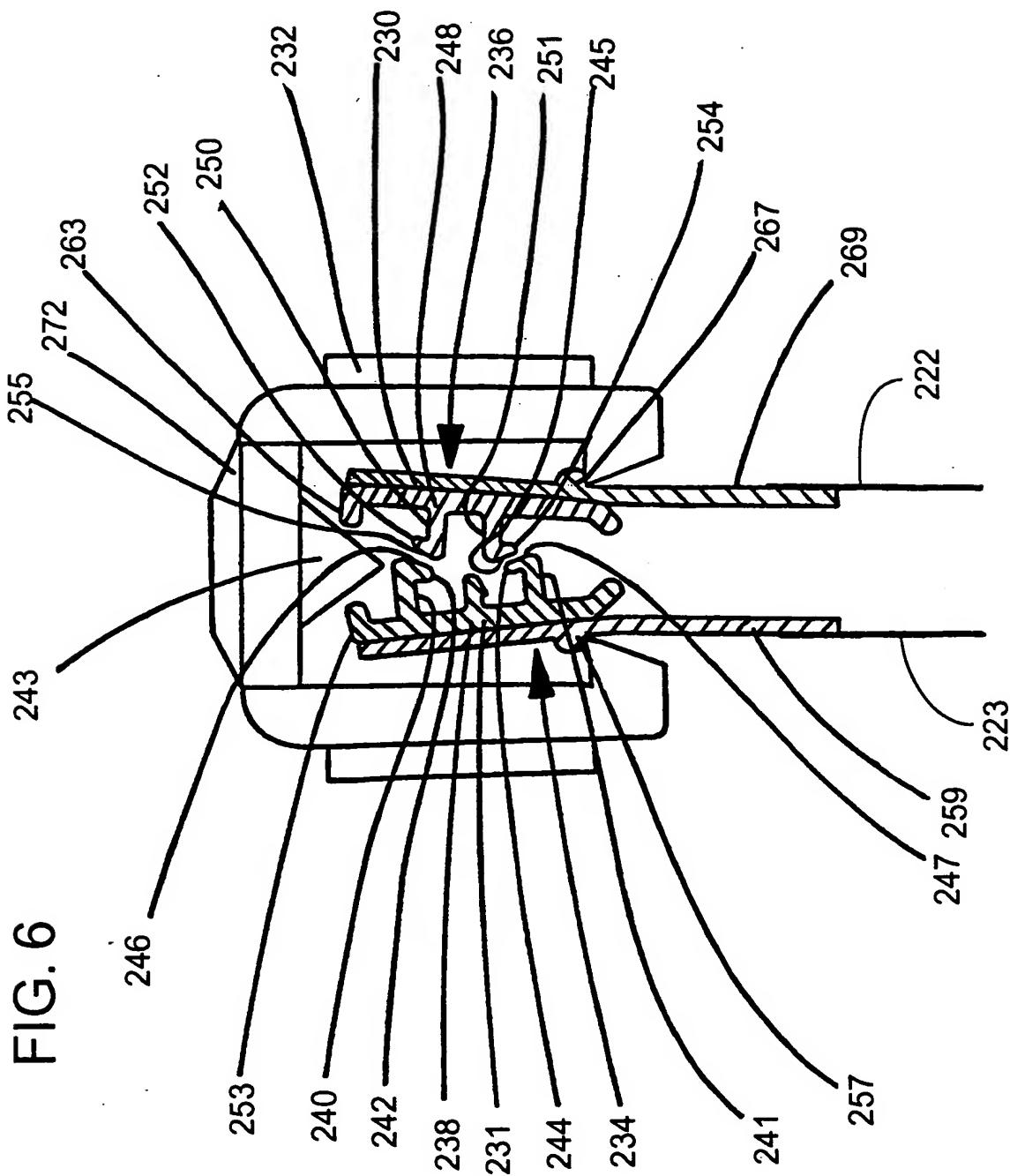


FIG. 5

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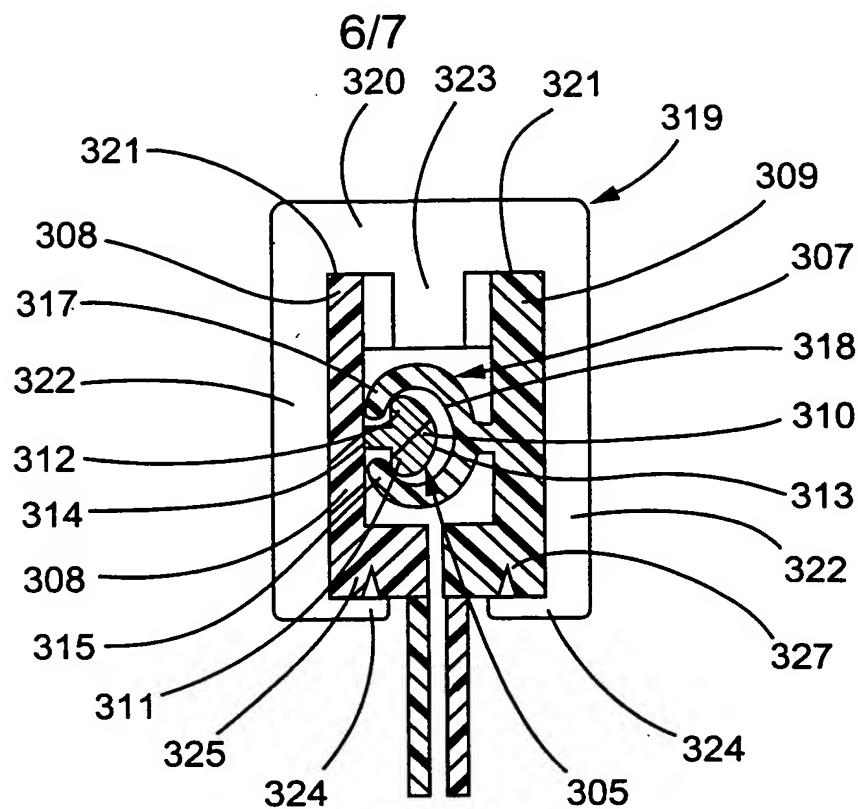


FIG. 7

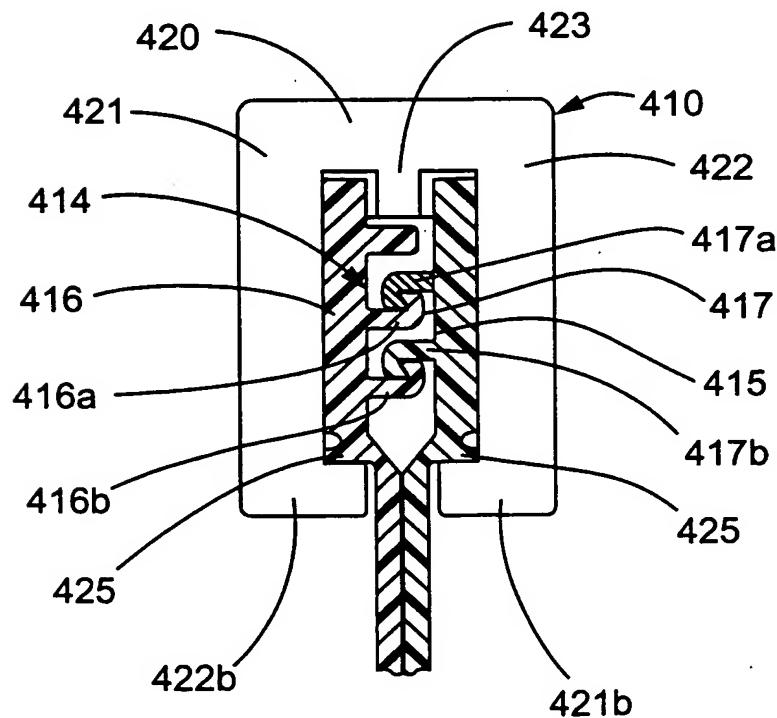


FIG. 8

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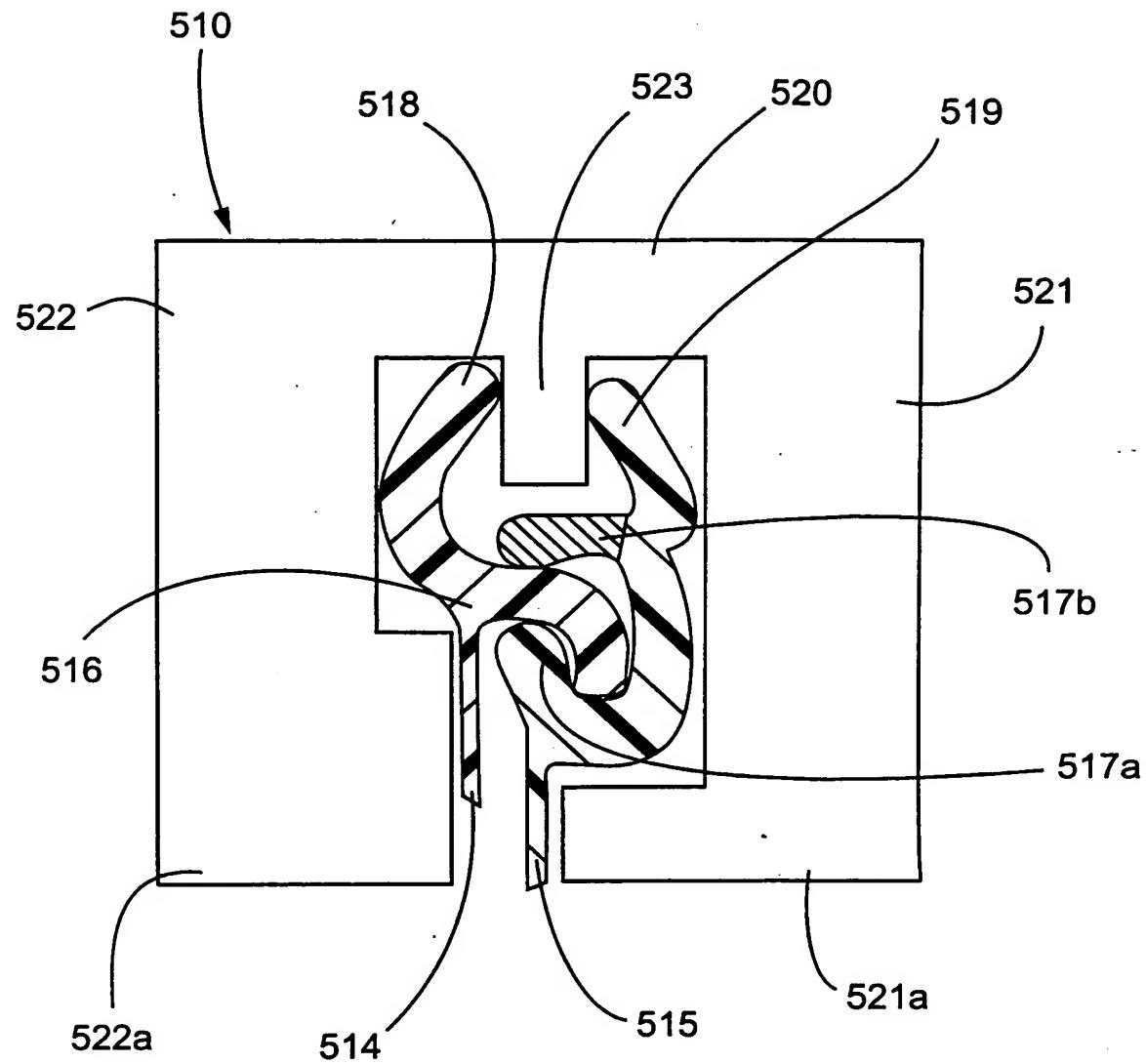


FIG. 9

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
 JOHN M. AUGUSTYN  
 LEYDIG, VOIT & MAYER, LTD.  
 TWO PRUDENTIAL PLAZA, SUITE 4900  
 180 NORTH ST.  
 CHICAGO, IL 60601-6780

**PROST Rec'd 05 FEB 2002**

**PCT**

NOTIFICATION OF TRANSMITTAL OF  
 THE INTERNATIONAL SEARCH REPORT  
 OR THE DECLARATION

(PCT Rule 44.1)

Date of Mailing  
 (day/month/year)

**03 NOV 2000**

Applicant's or agent's file reference 201260	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/US00/15566	International filing date (day/month/year) 06 June 2000 (06.06.2000)
Applicant THE GLAD PRODUCTS COMPANY	

<p>1. <input checked="" type="checkbox"/> The applicant is hereby notified that the international search report has been established and is transmitted herewith.</p> <p><b>Filing of amendments and statement under Article 19:</b>          The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):</p> <p><b>When?</b> The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.</p> <p><b>Where?</b> Directly to the International Bureau of WIPO          34, chemin des Colombettes          1211 Geneva 20, Switzerland          Facsimile No.: (41-22) 740.14.35</p> <p>For more detailed instructions, see the notes on the accompanying sheet.</p>	
<p>2. <input type="checkbox"/> The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.</p>	
<p>3. <input type="checkbox"/> With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.</li> <li><input type="checkbox"/> no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.</li> </ul>	
<p>4. <b>Further action(s):</b> The applicant is reminded of the following:</p> <p>Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in rules 90 bis 1 and 90 bis 3, respectively, before the completion of the technical preparations for international publication.</p> <p>Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).</p> <p>Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.</p>	

Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer James R. Brittain <i>James R. Brittain</i> Telephone No. 703-308-1113
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# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 201260	<b>FOR FURTHER ACTION</b>	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US00/15566	International filing date (day/month/year) 06 June 2000 (06.06.2000)	(Earliest) Priority Date (day/month/year)
Applicant THE GLAD PRODUCTS COMPANY		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the Report**

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

contained in the international application in written form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2.  **Certain claims were found unsearchable** (See Box I).

3.  **Unity of invention is lacking** (See Box II).

4. With regard to the title,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

LEYDIG, VOIT & MAYER  
RECEIVED

NOV 8 - 2000

PAT/TM Date 12-3-00

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 2

as suggested by the applicant.

None of the figures

because the applicant failed to suggest a figure.

because this figure better characterizes the invention.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/15566

## Box III TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

### NEW ABSTRACT

The closure device (121) includes interlocking fastening strips (130, 131). The closure device may include a slider (132) slidably disposed on the fastening strips for facilitating the occlusion and deocclusion of the fastening strips. The fastening strips (130, 131) include a first color for facilitating visual confirmation of occlusion of the fastening strips. The visible indication of occlusion will be observed from the top of the closure device (121). If the fastening strips are properly occluded, then the first color will not be visible by viewing the top of the closure device. The first color will be observed from the top of the closure device (121) when the bag is deoccluded.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/15566

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B65D 33/24

US CL : 24/30.5R

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 24/30.5R, 399, 400, 587, 575-577; 383/64, 69

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,356,222 A (KETTNER et al) 18 October 1994 (18.10.1994), see figures 1-6a.	1-10,13,14
---		-----
A		11,12
Y	US 5,140,796 A (POPE) 25 April 1992 (25.04.1992), see figure 1.	11, 12
A	US 5,248,201 A (KETTNER et al) 28 September 1993 (28.09.1993), see figure 4.	1
A	US 4,829,641 A (WILLIAMS) 16 May 1989 (16.05.1989), see figure 6.	1
A	US 4,186,786 A (KIRKPATRICK) 05 February 1980 (05.02.1980), see figure 2d.	1

Further documents are listed in the continuation of Box C.

See patent family annex.

• Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent published on or after the international filing date	"Y"	document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

28 August 2000 (28.08.2000)

Date of mailing of the international search report

03 AUG 2000

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

James R. Brittain

Telephone No. 703-308-1113

## NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under Article 19. The Notes are based on the requirements of the Patent Cooperation Treaty and of the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule" and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

### INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is normally no need to file amendments of the claims under Article 19 except where, e.g. the applicant waits for the letter to be published for the purpose of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

**The claims only.**

**The description and the drawings may only be amended during international preliminary examination under Chapter II.**

When?

Within 2 months from the date of transmission of the international search report or 36 months from the priority date, whichever date first expires later. It should be noted however, that the amendments will be considered as having been received on date if they are received by the International Bureau after the completion of the preliminary time limit but before the completion of the national procedures for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or cancellation, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

## NOTES TO FORM PCT/ISA/220 (continued)

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:  
"Claims 1 to 29, 31, 32, 34, 35, 37 to 46 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 47 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:  
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in canceling some claims and in adding new claims]:  
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 canceled; new claims 15, 16 and 17 added." or  
"Claims 7 to 13 canceled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:  
"Claims 1-10 unchanged; claims 11 to 11, 18 and 29 canceled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

### "Statement under Article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

The statement should be brief, it should not exceed 300 words if in English or if translated into English. It should not be confounded with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)". It should not contain any disapproving comments on the international search report or the relevance of claims contained in that report. Reference to claims, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

### In what language?

The amendments must be made in the language in which the international application is published. The letter and any statement accompanying the amendments must be in the same language as the international application if that language is English or French; otherwise, it must be in English or French, at the choice of the applicant.

### Consequence if a demand for international preliminary examination has already been filed?

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(e), first sentence).

### Consequence with regard to translation of the international application for entry into the national phase?

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Office, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PTO/PCT Rec'd 05 FEB 2002  
**PCT**  
**REQUEST**

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.
International Filing Date
Name of receiving Office and "PCT International Application"
Applicant's or agent's file reference (if desired) (12 characters maximum) 201260

<b>Box No. I TITLE OF INVENTION</b>		
CLOSURE DEVICE		
<b>Box No. II APPLICANT</b>		
<p>Name and Address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p> <p>THE GLAD PRODUCTS COMPANY  1221 Broadway  Oakland, California 94612  US</p>		<input type="checkbox"/> This person is also inventor. <p>Telephone No.  (510) 271-7000</p> <p>Facsimile No.  (510) 271-1652</p> <p>Teleprinter No.</p>
<p>State (that is, country) of nationality:  US</p>	<p>State (that is, country) of residence:  US</p>	
<p>This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input checked="" type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box</p>		
<b>Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)</b>		
<p>Name and Address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p> <p>SAVICKI, Alan F., Sr.  577 Beaconsfield Avenue  Naperville, Illinois 60565  US</p>		<p>This person is:</p> <p><input type="checkbox"/> applicant only  <input checked="" type="checkbox"/> applicant and inventor  <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)</p>
<p>State (that is, country) of nationality:  US</p>	<p>State (that is, country) of residence:  US</p>	
<p>This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box</p> <p><input type="checkbox"/> Further applicants and/or (further) inventors are indicated on a continuation sheet.</p>		
<b>Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE</b>		
<p>The person identified below is hereby/has been appointed to act on behalf of <input checked="" type="checkbox"/> agent <input type="checkbox"/> common representative the applicant(s) before the competent International Authorities as:</p>		
<p>Name and Address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)</p> <p>AUGUSTYN, John M.  LEYDIG, VOIT &amp; MAYER, LTD.  Two Prudential Plaza, Suite 4900  180 North Stetson  Chicago, Illinois 60601-6780  US</p>		<p>Telephone No.  (312) 616-5600</p> <p>Facsimile No.  (312) 616-5700</p> <p>Teleprinter No.</p>
<p><input type="checkbox"/> Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.</p>		

## Box No. V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

## Regional Patent

**AP** ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT

**EA** Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT

**EP** European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT

**OA** OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on the dotted line) . . . . .

National Patent (if other kind of protection or treatment desired, specify on dotted line):

<input checked="" type="checkbox"/> <b>AE</b> United Arab Emirates	<input checked="" type="checkbox"/> <b>LK</b> Sri Lanka
<input checked="" type="checkbox"/> <b>AL</b> Albania	<input checked="" type="checkbox"/> <b>LR</b> Liberia
<input checked="" type="checkbox"/> <b>AG</b> Antigua and Barbuda	<input checked="" type="checkbox"/> <b>LS</b> Lesotho
<input checked="" type="checkbox"/> <b>AM</b> Armenia	<input checked="" type="checkbox"/> <b>LT</b> Lithuania
<input checked="" type="checkbox"/> <b>AT</b> Austria	<input checked="" type="checkbox"/> <b>LU</b> Luxembourg
<input checked="" type="checkbox"/> <b>AU</b> Australia	<input checked="" type="checkbox"/> <b>LV</b> Latvia
<input checked="" type="checkbox"/> <b>AZ</b> Azerbaijan	<input checked="" type="checkbox"/> <b>MA</b> Morocco
<input checked="" type="checkbox"/> <b>BA</b> Bosnia and Herzegovina	<input checked="" type="checkbox"/> <b>MD</b> Republic of Moldova
<input checked="" type="checkbox"/> <b>BB</b> Barbados	<input checked="" type="checkbox"/> <b>MG</b> Madagascar
<input checked="" type="checkbox"/> <b>BG</b> Bulgaria	<input checked="" type="checkbox"/> <b>MK</b> The former Yugoslav Republic of Macedonia
<input checked="" type="checkbox"/> <b>BR</b> Brazil	<input checked="" type="checkbox"/> <b>MN</b> Mongolia
<input checked="" type="checkbox"/> <b>BY</b> Belarus	<input checked="" type="checkbox"/> <b>MW</b> Malawi
<input checked="" type="checkbox"/> <b>BZ</b> Belize	<input checked="" type="checkbox"/> <b>MX</b> México
<input checked="" type="checkbox"/> <b>CA</b> Canada	<input checked="" type="checkbox"/> <b>MZ</b> Mozambique
<input checked="" type="checkbox"/> <b>CH</b> and <b>LI</b> Switzerland and Liechtenstein	<input checked="" type="checkbox"/> <b>NO</b> Norway
<input checked="" type="checkbox"/> <b>CN</b> China	<input checked="" type="checkbox"/> <b>NZ</b> New Zealand
<input checked="" type="checkbox"/> <b>CR</b> Costa Rica	<input checked="" type="checkbox"/> <b>PL</b> Poland
<input checked="" type="checkbox"/> <b>CU</b> Cuba	<input checked="" type="checkbox"/> <b>PT</b> Portugal
<input checked="" type="checkbox"/> <b>CZ</b> Czech Republic	<input checked="" type="checkbox"/> <b>RO</b> Romania
<input checked="" type="checkbox"/> <b>DE</b> Germany	<input checked="" type="checkbox"/> <b>RU</b> Russian Federation
<input checked="" type="checkbox"/> <b>DK</b> Denmark	<input checked="" type="checkbox"/> <b>SD</b> Sudan
<input checked="" type="checkbox"/> <b>DM</b> Dominica	<input checked="" type="checkbox"/> <b>SE</b> Sweden
<input checked="" type="checkbox"/> <b>DZ</b> Algeria	<input checked="" type="checkbox"/> <b>SG</b> Singapore
<input checked="" type="checkbox"/> <b>EE</b> Estonia	<input checked="" type="checkbox"/> <b>SI</b> Slovenia
<input checked="" type="checkbox"/> <b>ES</b> Spain	<input checked="" type="checkbox"/> <b>SK</b> Slovakia
<input checked="" type="checkbox"/> <b>FI</b> Finland	<input checked="" type="checkbox"/> <b>SL</b> Sierra Leone
<input checked="" type="checkbox"/> <b>GB</b> United Kingdom	<input checked="" type="checkbox"/> <b>TJ</b> Tajikistan
<input checked="" type="checkbox"/> <b>GD</b> Grenada	<input checked="" type="checkbox"/> <b>TM</b> Turkmenistan
<input checked="" type="checkbox"/> <b>GE</b> Georgia	<input checked="" type="checkbox"/> <b>TR</b> Turkey
<input checked="" type="checkbox"/> <b>GH</b> Ghana	<input checked="" type="checkbox"/> <b>TT</b> Trinidad and Tobago
<input checked="" type="checkbox"/> <b>GM</b> Gambia	<input checked="" type="checkbox"/> <b>TZ</b> United Republic of Tanzania
<input checked="" type="checkbox"/> <b>HR</b> Croatia	<input checked="" type="checkbox"/> <b>UA</b> Ukraine
<input checked="" type="checkbox"/> <b>HU</b> Hungary	<input checked="" type="checkbox"/> <b>UG</b> Uganda
<input checked="" type="checkbox"/> <b>ID</b> Indonesia	<input checked="" type="checkbox"/> <b>US</b> United States of America
<input checked="" type="checkbox"/> <b>IL</b> Israel	<input checked="" type="checkbox"/> <b>UZ</b> Uzbekistan
<input checked="" type="checkbox"/> <b>IN</b> India	<input checked="" type="checkbox"/> <b>VN</b> Viet Nam
<input checked="" type="checkbox"/> <b>IS</b> Iceland	<input checked="" type="checkbox"/> <b>YU</b> Yugoslavia
<input checked="" type="checkbox"/> <b>JP</b> Japan	<input checked="" type="checkbox"/> <b>ZA</b> South Africa
<input checked="" type="checkbox"/> <b>KE</b> Kenya	<input checked="" type="checkbox"/> <b>ZW</b> Zimbabwe
<input checked="" type="checkbox"/> <b>KG</b> Kyrgyzstan	
<input checked="" type="checkbox"/> <b>KP</b> Democratic People's Republic of Korea	
<input checked="" type="checkbox"/> <b>KR</b> Republic of Korea	
<input checked="" type="checkbox"/> <b>KZ</b> Kazakhstan	
<input checked="" type="checkbox"/> <b>LC</b> Saint Lucia	

Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet:

. . . . .

. . . . .

**Precautionary Designation Statement:** In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

**Supplemental Box** *If the Supplemental Box is not used, this sheet need not be included in the request.*

1. *If, in any of the boxes, the space is insufficient to furnish all the information: in such case write "Continuation of Box No. ... (indicate the number of the Box)" and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:*

- (i) *if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this box is the applicant's State (that is, country) of residence if no State of residence is indicated below;*
- (ii) *if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;*
- (iii) *if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;*
- (iv) *if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;*
- (v) *if, in Box. No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or, in, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box No. V" and the name of each State (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;*
- (vi) *if, in Box No. VI, there are more than three earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;*
- (vii) *if, in Box No. VI, the earlier application is an APIPO application: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed.*

2. *If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.*

3. *If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.*

**Continuation of Box No. IV:**

SHEPPARD, Berton Scott	RUSCHAU, Pamela J.
MUSKAL, James B.	PETERSEN, Steven P.
SCHLEMMER, Dennis R.	GRIFFITH, Christopher T.
COONS, Gordon R.	MUELLER, Wesley O.
ROSENQUIST, John E.	JAY, Jeremy M.
KOZAK, John W.	BURGAN, Jeffrey B.
OSLAKOVIC, Charles S.	THOMPSON, Eley O.
PHELPS, Mark E.	JOY, Mark
HARTMANN, H. Michael	AIRAN, David M.
GAGALA, Bruce M.	BELUSH, Thomas A.
MOTTIER, Charles H.	HOOVER, Allen E.
KILYK, John, Jr.	PILLAI, Xavier
GREEN, Robert F.	CHANG, Y. Kurt
CONKLIN, John B.	BAYS, Gregory C.
ZALEWA, James D.	LARCHER, Carol
BELZ, John M.	SKLAR, Steven H.
HESTERBERG, Brett A.	HEFNER, M. Daniel
WYAND, Jeffrey A.	
KORNICZKY, Paul J.	

SPINA, Kenneth P.
GUTMAN, Siegmund Y.
HEINISCH, Andrew J.
MAKEEVER, Jeffery J.
HASAN, Salim A.
WULFF, Richard A.
PIPPENGER, Phillip M.
LYNCH, Jamison E.
VASILJEVIC, Vladan M.
NATH, Rattan
GOULD, Robert M.
SMITH, Len S.
WINGATE, Kevin L.
SCHODIN, David J.
KISSLING, Heather R.
AHERN, Paul L.
ANDERSON, Theodore W.
SMITH, Noel I.

all of  
 LEYDIG, VOIT & MAYER, LTD.  
 Two Prudential Plaza, Suite 4900  
 180 North Stetson  
 Chicago, Illinois 60601-6780  
 US  
 (312) 616-5600 Telephone  
 (312) 616-5700 Fax

## Box No. VI PRIORITY CLAIM

 Further priority claims are indicated in the Supplemental Box.

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application: <sup>*</sup> regional Office	international application: receiving Office
item (1)				
item (2)				
item (3)				

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office for which for the purposes of the present international application is the receiving Office) identified above as item(s):

\* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.

## Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (If two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):

ISA / US

Request to use results of earlier search; reference to that search (if an earlier search has been carried out or requested from the International Searching Authority):

Date (day/month/year)

Number

Country (or regional Office)

## Box No. VIII CHECK LIST; LANGUAGE OF FILING

This international application contains the following number of sheets:

request : 4  
description (excluding sequence listing part) : 16  
claims : 3  
abstract : 1  
drawings : 7  
sequence listing part of description : —  
total number of sheets: 31

This international application is accompanied by the item(s) marked below:

1.  fee calculation sheet
2.  separate signed power of attorney
3.  copy of general power of attorney; reference number, if any:
4.  statement explaining lack of signature
5.  priority document(s) identified in Box No. VI as item(s):
6.  translation of international application into (language):
7.  separate indications concerning deposited microorganisms or other biological material
8.  nucleotide and/or amino acid sequence listing in computer readable form
9.  other (specify):

Figure of the drawings which should accompany the abstract:

Language of filing of the international application: English

## Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

LEYDIG, VOIT & MAYER, LTD.  
Agent for the Applicant(s)

By:

John M. Augstyn

For receiving Office use only

1. Date of actual receipt of the purported international application:	2. Drawings:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:	<input type="checkbox"/> received: <input type="checkbox"/> not received:
4. Date of timely receipt of the required corrections under PCT Article 11(2):	
5. International Searching Authority ISA / specified by applicant:	6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.

For International Bureau use only

Date of receipt of the record copy by the International Bureau:

This sheet is not part of and does not count as a sheet of the international application.

PCT

FEE CALCULATION SHEET

For receiving Office use only

Annex to the Request

International Application No.

Applicant's or agent's file reference	201260	Date stamp of the receiving Office
Applicant THE GLAD PRODUCTS COMPANY et al.		
CALCULATION OF PRESCRIBED FEES		
1. TRANSMITTAL FEE	\$240.00	T
2. SEARCH FEE	\$700.00	S
International Search to be carried out by	ISA/US	
(If two or more international Searching Authorities are competent in relation to the international application, indicate the name of the Authority which is chosen to carry out the international search.)		
3. INTERNATIONAL FEE		
Basic Fee		
The international application contains 31 sheets.		
first 30 sheets . . . . .	\$427.00	b <sub>1</sub>
1 x \$10.00 =	\$10.00	b <sub>2</sub>
remaining sheets additional amount		
Add amounts entered at b <sub>1</sub> and b <sub>2</sub> and enter total at B	\$437.00	B
Designation Fees		
The international application contains 87 designations.		
8 x \$92.00 =	\$736.00	D
number of designation fees	amount of designation fee	
payable (maximum 8)		
Add amounts at B and D and enter total amount at I . . . . .	\$1,173.00	I
(Applicants from certain states are entitled to a reduction of 75% of the international fee. Where the applicant is (or all applicants are) so entitled, the total to be entered at I is 25% of the sum of the amounts entered at B and D.)		
4. FEE FOR PRIORITY DOCUMENT (if applicable) . . . . .	0	P
5. TOTAL FEES PAYABLE	\$2,113.00	
Add amounts entered at T, S, I and P, and enter total in the TOTAL box	TOTAL	
<input type="checkbox"/> The designation fees are not paid at this time.		
MODE OF PAYMENT		
<input type="checkbox"/> authorization to charge deposit account (see below)	<input type="checkbox"/> bank draft	<input type="checkbox"/> Coupons
<input checked="" type="checkbox"/> cheque	<input type="checkbox"/> cash	<input type="checkbox"/> other (specify):
<input type="checkbox"/> postal money order	<input type="checkbox"/> revenue stamps	
DEPOSIT ACCOUNT AUTHORIZATION (this mode of payment may not be available at all receiving Offices)		
The RO/ US	<input type="checkbox"/>	is hereby authorized to charge the total fees indicated above to my deposit account.
	<input checked="" type="checkbox"/>	(this box may be marked only if the conditions for deposit accounts of the receiving Office so permit) is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.
	<input type="checkbox"/>	is hereby authorized to charge the fee for preparation and transmittal of the priority document to the International Bureau of WIPO to my deposit account.
12-1216	06/06/2000	
Deposit Account Number	Date (day/month/year)	Signature

# PCT

## GENERAL POWER OF ATTORNEY

(for several international applications filed under the Patent Cooperation Treaty)

(PCT Rule 90.5)

The undersigned person(s)

(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

THE GLAD PRODUCTS COMPANY  
1221 Broadway  
Oakland, California 94612

hereby appoints (appoint) the following person as:  agent  common representative

Name and address

(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

SHEPPARD, Berton Scott; MUSKAL, James B; SCHLEMMER, Dennis R.; COONS, Gordon R.; ROSENQUIST, John E.; KOZAK, John W.; OSLAKOVIC, Charles S.; PHELPS, Mark E.; HARTMANN, H. Michael; GAGALA, Bruce M.; MOTTIER, Charles H.; KILYK, John, Jr.; GREEN, Robert F.; CONKLIN, John B.; ZALEWA, James D.; BELZ, John M.; HESTERBERG, Brett A.; WYAND, Jeffrey A.; KORNICZKY, Paul J.; RUSCHAU, Pamela J.; PETERSEN, Steven P.; AUGUSTYN, John M.; GRIFFITH, Christopher T.; MUELLER, Wesley O.; JAY, Jeremy M.; BURGAN, Jeffrey B.; THOMPSON, Eley O.; JOY, Mark; HOOVER, Allen E.; AIRAN, David M.; PILLAI, Xavier; CHANG, Y. Kurt; BAYS, Gregory C.; LARCHER, Carol; MILLER, Thomas A.; SKLAR, Steven H.; HUNT, Gregory A.; HEFNER, M. Daniel; MATTHIAS, Brent E.; JEWIK, Patrick R.; BELUSH, Thomas A.; JAROSIK, Gary R.; OSTROFF, Joseph S.; MAKEEVER, Jeffery J.; HASAN, Salim A.; SCHODIN, David J.; AHERN, Paul L.; ANDERSON, Theodore W.; SMITH, Noel L, all of

LEYDIG, VOIT & MAYER, Ltd., Two Prudential Plaza, Suite 4900, Chicago, Illinois 60601-6780, US

to represent the undersigned before

all the competent International Authorities  
 the International Searching Authority only  
 the International Preliminary Examining Authority only

in connection with any and all international applications filed with the following Office, United States Patent and Trademark Office, as receiving Office and to make or receive payment on behalf of the undersigned.

Signature of the applicant(s) (where there are several applicants, each of them must sign; next to each signature, indicate the name of the person signing and the capacity in which the person signs, if such capacity is not obvious from reading this power):



Thomas W. Huckaby  
Assistant Secretary  
Representative of the Applicant

Date: July 16, 1999

PCT

**GENERAL POWER OF ATTORNEY**

(for several international applications filed under the Patent Cooperation Treaty)

(PCT Rule 90.5)

The undersigned person(s)

(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

SAVICKI, Alan F., Sr.  
577 Beaconsfield Avenue  
Naperville, Illinois 60565  
US

hereby appoints (appoint) the following person as:  agent  common representative

**Name and address**

(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

SHEPPARD, Berton Scott; MUSKAL, James B.; SCHLEMMER, Dennis R.; COONS, Gordon R.; ROSENQUIST, John E.; KOZAK, John W.; OSLAKOVIC, Charles S.; PHELPS, Mark E.; HARTMANN, H. Michael; GAGALA, Bruce M.; MOTTIER, Charles H.; KILYK, John, Jr.; GREEN, Robert F.; CONKLIN, John B.; ZALEWA, James D.; BELZ, John M.; HESTERBERG, Brett A.; WYAND, Jeffrey A.; KORNICZKY, Paul J.; RUSCHAU, Pamela J.; PETERSEN, Steven P.; AUGUSTYN, John M.; GRIFFITH, Christopher T.; MUELLER, Wesley O.; JAY, Jeremy M.; BURGAN, Jeffrey B.; THOMPSON, Eley O.; JOY, Mark; HOOVER, Allen E.; AIRAN, David M.; PILLAI, Xavier; CHANG, Y. Kurt; BAYS, Gregory C.; LARCHER, Carol; SKLAR, Steven H.; HEFNER, M. Daniel; BELUSH, Thomas A.; SPINA, Kenneth P.; GUTMAN, Siegmund Y.; HEINISCH, Andrew J.; MAKEEVER, Jeffery J.; HASAN, Salim A.; WULFF, Richard A.; PIPPENGER, Phillip M.; LYNCH, Jamison E.; VASILJEVIC, Vladan M.; NATH, Rattan; GOULD, Robert M.; SMITH, Len S.; WINGATE, Kevin L.; SCHODIN, David J.; KISSLING, Heather R.; AHERN, Paul L.; ANDERSON, Theodore W.; and SMITH, Noel I., all of

LEYDIG, VOIT & MAYER, Ltd., Two Prudential Plaza, Suite 4900, Chicago, Illinois 60601-6780, US

to represent the undersigned before

all the competent International Authorities  
 the International Searching Authority only  
 the International Preliminary Examining Authority only

in connection with any and all international applications filed with the following Office, United States Patent and Trademark Office, as receiving Office and to make or receive payment on behalf of the undersigned.

**Signature of the applicant(s)** (where there are several applicants, each of them must sign; next to each signature, indicate the name of the person signing and the capacity in which the person signs, if such capacity is not obvious from reading this power):

Al F. Savicki, Sr.

Alan F. Savicki, Sr.

Date: 5/18/00